

**DEPARTMENT OF TRANSPORTATION****DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch

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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.28**WELDING INSPECTION REPORT****Resident Engineer:**Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-008807**Date Inspected:** 20-Aug-2009**Project Name:** SAS Superstructure**OSM Arrival Time:** 1845**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 715**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** See Below**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** SFOBB Fabrication**Summary of Items Observed:**

CWI Inspectors: Mr. Yumin Xu, Mr. Li Lin

On this date CALTRANS OSM Quality Assurance (QA) Inspector, Mr. Paul Dawson, arrived on site at the Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai, China, for the purpose of monitoring welding and fabrication of the San Francisco / Oakland Bay Bridge (SFOBB) components. This QA Inspector observed the following:

**Tower Bay 11**

This QA Inspector observed ZPMC welder stencil 061184, is using welding procedure WPS-B-P-4332-TC-P4-F to make flux cored groove weld WSD1-FESA4-C/F-3. This QA Inspector observed ZPMC Quality Control CWI Mr. Li Lin monitoring the welding parameters, base material preheat and interpass temperatures. This QA Inspector measured a welding current of approximately 330 amps, 30.0 volts. This QA Inspector measured the base material temperature and observed one end of the weld appears to have been preheated to a temperature slightly above the maximum interpass temperature of 230C degrees. This QA Inspector informed Mr. Li Lin who had the electrical heating element removed from the area that had excessive base material temperature, and Mr. Li Lin informed the welder to let that portion of the weld cool to below 230C degrees prior to welding at that location.

Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder stencil 070212, is using welding procedure WPS-B-P-4332-TC-P4-F to make flux cored groove weld WSD1-FESA4-B/F-14. This QA Inspector observed ZPMC Quality Control CWI

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Mr. Li Lin monitoring the welding parameters, base material preheat and interpass temperatures. This QA Inspector measured a welding current of approximately 330 amps, 29.0 volts and measured the base material temperature and observed the base material appears to be between 180C degrees and 230C degrees as required by the welding procedure. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder stencil 070254, is using welding procedure WPS-B-P-4332-TC-P4-F to make flux cored groove weld WSD1-FESA4-B/F-1. This QA Inspector observed ZPMC Quality Control CWI Mr. Li Lin monitoring the welding parameters, base material preheat and interpass temperatures. This QA Inspector measured a welding current of approximately 330 amps, 30.3 volts. This QA Inspector measured the base material temperature and observed the base material appears to be between 180C degrees and 230C degrees as required by the welding procedure. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder stencil 066882, is using welding procedure WPS-B-P-4332-TC-P4-F to make flux cored groove weld WSD1-FESA4-C/F-10. This QA Inspector observed ZPMC Quality Control CWI Mr. Li Lin monitoring the welding parameters, base material preheat and interpass temperatures. This QA Inspector measured a welding current of approximately 290 amps, 31.0 volts. This QA Inspector measured the base material temperature and observed the base material appears to be between 180C degrees and 230C degrees as required by the welding procedure. Items observed on this date appeared to generally comply with applicable contract documents.

Trial Assembly, Segment 1AW

This QA Inspector observed ZPMC welder Mr. Han Xiaufeng, stencil 054467 is using shielded metal arc welding process to make OBG weld SSD27-PP016-223. This QA Inspector measured a welding current of approximately 160 amps and the welding electrodes are being stored in a portable electrode storage oven. This QA Inspector observed Mr. Han Xiaufeng is certified to make this weld. Items observed on this date appeared to generally comply with applicable contract documents.

ZPMC issued "Inspection Notification Sheet" number 4018 informing QA that ZPMC has completed visual and magnetic particle inspections of welds DP570-001-095, DP570-001-096, DP575-001-095, DP575-001-096. This QA Inspector performed visual and random magnetic particle inspections of weld DP575-001-096 and observed multiple linear MT indications in the surface of one end of the weld and the weld is visually unacceptable in the area where the magnetic particle indications were observed. This QA Inspector informed ZPMC CWI Mr. Yumin Xu that weld DP575-001-096 appears to have visual and magnetic particle rejections and that the welds listed above do not appear to be identified with any weld markings. Mr. Yumin Xu consulted with ABF representative Mr. Ji Wei Chen and neither of these two people could confirm the weld identifications. The QA Inspector also informed Mr. Yumin Xu that weld DP570-001-096 also appears to be visually rejected. Mr. Yumin Xu visually inspected welds DP570-001-096 and DP575-001-096 and he agreed both welds are visually rejectable. This QA Inspector informed Mr. Yumin Xu that this QA Inspector will be generating an incident report to document the MT and visual weld rejections. For additional information on the magnetic particle inspection see the TL6028 Magnetic Particle Test Report and the photographs below.

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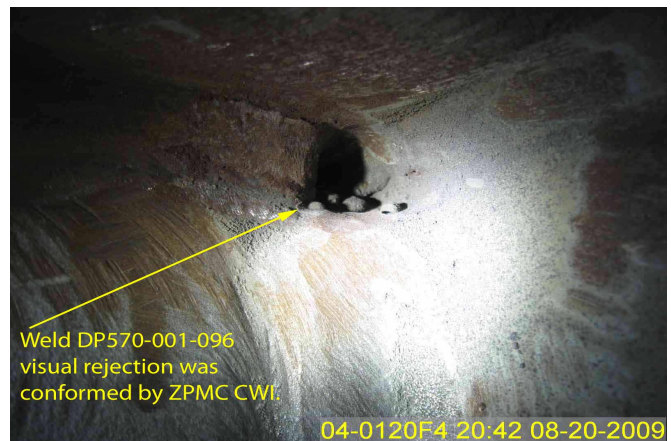
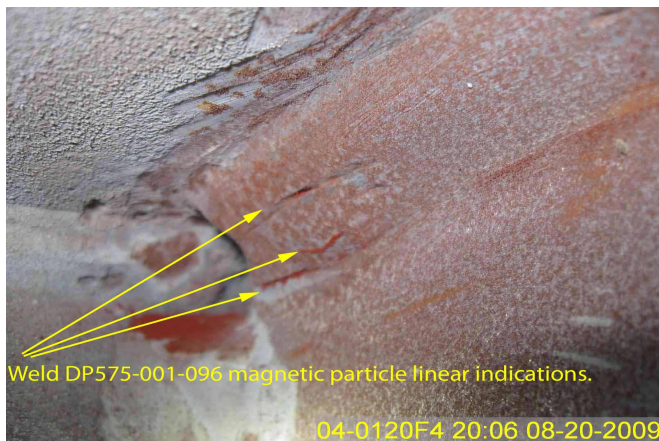
### OBG Bay 13

This QA Inspector observed ZPMC QC Inspector Mr. Wang Lu has documented that ZPMC welder stencil 051559 is using welding procedure WPS-B-P-2213-TC-U4B-FCM-1 to make OBG weld SEG047J-040. This QA Inspector observed the QC document indicates a welding current of 150 amps and 25.3 volts. Items observed on this date appeared to generally comply with applicable contract documents.

### OBG Bay 14

This QA Inspector observed ZPMC welder Mr. Li Jiao, stencil 049861 is using the shielded metal arc welding procedure WPS-B-T-2112 to make tack welds between diaphragm plates and OBG deck plate DP398-001. This QA Inspector observed a welding current of approximately 125 amps and QC personnel were monitoring this welding. This QA Inspector observed that Mr. Li Jiao is certified to make this weld and the electrode storage oven feels hot to the touch and appears to be connected to an electrical power cord. Items observed on this date appeared to generally comply with applicable contract documents.

This QA Inspector observed ZPMC welder Mr. Dan Deyin, stencil 044795 is using welding procedure WPS-B-P-2231 to make flux cored weld SSD-20A-125 at PP77. This QA Inspector observed that ZPMC QC Inspector Mr. Tian Lei has recorded a welding current of 217 amps and 25.2 volts and this QA Inspector measured a welding current of 230 amps and 25 volts. This QA Inspector observed that Mr. Dan Deyin is certified to make this weld. Items observed on this date appeared to generally comply with applicable contract documents.



### Summary of Conversations:

See above.

### Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Eric Tsang phone: 150-0042-2372 , who represents the Office of Structural Materials for your project.

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**Inspected By:** Dawson,Paul

Quality Assurance Inspector

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**Reviewed By:** Carreon,Albert

QA Reviewer